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INSTALLATION, OPERATIONS, AND MAINTENANCE

**Double Check Backflow Preventer (FDC) and
Reduced Pressurezone Backflow Preventer (FRP)**

LIT-207



**PROVEN
RELIABILITY**



**WATER
IS OUR
FOCUS**



**ENGINEERED
SOLUTIONS**



**TRUSTED
WORLDWIDE**



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IO & M

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CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TRUSTED WATER & IRRIGATION SOLUTIONS

BEECO® a proud division of MIFAB® has been protecting water systems for decades with durable, efficient valves and fittings. Known as the first approved testable backflow preventer, BEECO® leads the industry in commercial backflow preventers, pressure reducing valves, automatic control valves (ACVs), and accessories.

Today, we set new standards in product availability, customer support, and engineering innovation. From municipal utilities and agriculture to golf courses, athletic fields, and landscaping, BEECO® delivers reliable, affordable, and easy-to-maintain flow control solutions.

With MIFAB®, you also gain access to irrigation-ready products like yard hydrants, roof drains, trench drains, wall hydrants, and floor drains making us your one-stop shop for water works and irrigation needs.

Choose BEECO® and MIFAB® for proven performance, trusted innovation, and solutions built to last.

Certifications & Standards:

- NSF Certified
- AWWA Compliant
- Lead-Free Materials
- ISO Manufacturing

Markets Served:

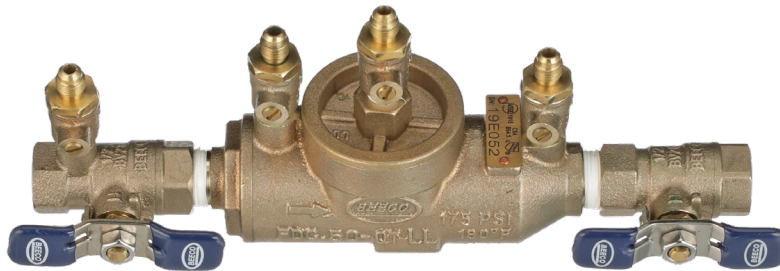
- Municipal Water Utilities
- Industrial & Plant Piping
- Fire Protection
- Water Distribution Contractors

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BEECO® FRIENDLY DOUBLE CHECK

Small FDC	Large FDC
(1/2", 3/4", 1", 1 1/4", 1 1/2" & 2")	(2 1/2", 3", 4", 6", 8" and 10")



**FDC (1/2"-2") double check
Backflow Preventer**



**FDC (2 1/2"-10") Double Check
Backflow Preventer**

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MODEL NO.	SIZE	First Check	Second Check	Rubber Seats and Seals for Checks	Rubber parts for Relief Valve
FDC.50-XXXXXX	1/2"	FDC.75-CHECK	FDC.75-CHECK	FDC.75-RUBBER-KIT	NONE
FDC.75-XXXXXX	3/4"	FDC.75-CHECK	FDC.75-CHECK	FDC.75-RUBBER-KIT	NONE
FDC1.00-XXXXXX	1"	FDC1.00-CHECK	FDC1.00-CHECK	FDC1.00-RUBBER-KIT	NONE
FDC1.25-XXXXXX	1 1/4"	FDC1.00-CHECK	FDC1.00-CHECK	FDC1.00-RUBBER-KIT	NONE
FDC1.50-XXXXXX	1 1/2"	FDC1.50-CHECK	FDC1.50-CHECK	FDC1.50-RUBBER-KIT	NONE
FDC2.00-XXXXXX	2"	FDC2.00-CHECK	FDC2.00-CHECK	FDC2.00-RUBBER-KIT	NONE
FDC2.50-XXXXXX	2 1/2"	FDC4.00-CHECK	FDC4.00-CHECK	FDC4.00-RUBBER-KIT	NONE
FDC3.00-XXXXXX	3"	FDC4.00-CHECK	FDC4.00-CHECK	FDC4.00-RUBBER-KIT	NONE
FDC4.00-XXXXXX	4"	FDC4.00-CHECK	FDC4.00-CHECK	FDC4.00-RUBBER-KIT	NONE
FDC6.00-XXXXXX	6"	FDC6.00-CHECK	FDC6.00-CHECK	FDC6.00-RUBBER-KIT	NONE
FDC8.00-XXXXXX	8"	FDC10.00-CHECK	FDC10.00-CHECK	FDC10.00-RUBBER-KIT	NONE
FDC10.00-XXXXXX	10"	FDC10.00-CHECK	FDC10.00-CHECK	FDC10.00-RUBBER-KIT	NONE

PURPOSE: TheBEECO FDC is designed to eliminate contamination from cross connections in a potable water system. A cross connection is any physical connection between two separate systems, one of which contains drinking water and the other polluted or contaminated fluids, chemicals or sewage. Contaminated water may flow through cross connections and between connected systems as the direction of flow can reverse depending on the pressure differential of each system. The BEECO Double Check Valve is designed to protect against backpressure and back-siphonage.

SIZING AND INSTALLATION GUIDE: The Beeco Double Check valve is made to fit all standard pipe sizes from a 1/2" supply line up to a 10" main supply line. These valves can be installed in either indoor or outdoor applications but need to be protected against freezing in cold weather climates. All backflow devices must be installed by a licensed plumbing professional and must be installed according to your local and state plumbing codes. All Double Check valves must be retested each year by a trained licensed backflow specialist.

HOW IT WORKS: A simple method of protecting your potable water supply without the need to re-establish pressure by means of pumps or towers, is the use of a double check valve. The BEECO Double Check Valve comes with two internal checks. These checks are spring loaded and open and allow water to pass through in the direction of flow when the water pressure reaches 4PSI or higher and the checks stay open as long as there is flow and pressure in the normal direction of flow. Should a backpressure or back-siphonage occur in the system and start the flow of water in a reverse direction both check valves will close preventing contamination of your water supply.

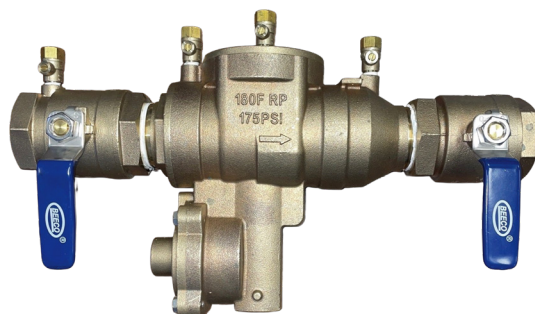
FEATURES AND BENEFITS: The new modern redesigned BEECO Friendly Double Check Valve was designed with input from hundreds of plumbers and many backflow specialists were involved. It was designed with ease of access and a dramatic reduction in the number of spare parts needed. The light weight, short lay length modular design makes this valve the easiest and quickest valve to perform your mandatory yearly recertification on. For a complete list of all our features and benefits see our BEECO MAKES IT EASY FOR YOU brochure on the next two pages. The BEECO DCDA device shall provide protection where a potential health hazard does not exist. It incorporates a metered by-pass to detect leaks and unauthorized water use. The BEECO Double Check Device is designed for installation on potable water lines connections in fire sprinkler systems to protect against both backsiphonage and backpressure of polluted water into the potable water supply. See our RPDA product offering on page 28 of this catalog.

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BEECO® REDUCED PRESSURE ZONE

Small FRP	Large FRP
(1/2", 3/4", 1", 1 1/4", 1 1/2", 2")	(2 1/2", 3", 4", 6", 8" and 10")



FRP (1/2"-2") REDUCED PRESSURE ZONE Backflow Preventer



FRP (2 1/2"-10") REDUCED PRESSURE ZONE Backflow Preventer

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

MODEL NO.	SIZE	First Check	Second Check	Rubber Seats and Seals for Checks	Rubber parts for Relief Valve	Plastic parts for Relief Valve
FRP50-XXXXXX	1/2"	FRP75-CHECK-1ST	FRP75-CHECK-2ND	FRP75-RUBBER-KIT	FRP1.00-RV-KIT	FRP1.00-RV-PARTS
FRP75-XXXXXX	3/4"	FRP75-CHECK-1ST	FRP75-CHECK-2ND	FRP75-RUBBER-KIT	FRP1.00-RV-KIT	FRP1.00-RV-PARTS
FRP1.00-XXXXXX	1"	FRP1.00-CHECK-1ST	FRP1.00-CHECK-2ND	FRP1.00-RUBBER-KIT	FRP1.00-RV-KIT	FRP1.00-RV-PARTS
FRP1.25-XXXXXX	1 1/4"	FRP2.00-CHECK-1ST	FRP2.00-CHECK-2ND	FRP2.00-RUBBER-KIT	FRP2.00-RV-KIT	FRP2.00-RV-PARTS
FRP1.50-XXXXXX	1 1/2"	FRP2.00-CHECK-1ST	FRP2.00-CHECK-2ND	FRP2.00-RUBBER-KIT	FRP2.00-RV-KIT	FRP2.00-RV-PARTS
FRP2.00-XXXXXX	2"	FRP2.00-CHECK-1ST	FRP2.00-CHECK-2ND	FRP2.00-RUBBER-KIT	FRP2.00-RV-KIT	FRP2.00-RV-PARTS
FRP2.50-XXXXXX	2 1/2"	FRP4.00-CHECK-1ST	FRP4.00-CHECK-2ND	FRP4.00-RUBBER-KIT	FRP6.00-RV-KIT	FRP6.00-RV-PARTS
FRP3.00-XXXXXX	3"	FRP4.00-CHECK-1ST	FRP4.00-CHECK-2ND	FRP4.00-RUBBER-KIT	FRP6.00-RV-KIT	FRP6.00-RV-PARTS
FRP4.00-XXXXXX	4"	FRP4.00-CHECK-1ST	FRP4.00-CHECK-2ND	FRP4.00-RUBBER-KIT	FRP6.00-RV-KIT	FRP6.00-RV-PARTS
FRP6.00-XXXXXX	6"	FRP6.00-CHECK-1ST	FRP6.00-CHECK-2ND	FRP6.00-RUBBER-KIT	FRP6.00-RV-KIT	FRP6.00-RV-PARTS
FRP8.00-XXXXXX	8"	FRP10.00-CHECK-1ST	FRP10.00-CHECK-2ND	FRP10.00-RUBBER-KIT	FRP10.00-RV-KIT	FRP10.00-RV-PARTS
FRP10.00-XXXXXX	10"	FRP10.00-CHECK-1ST	FRP10.00-CHECK-2ND	FDC10.00-RUBBER-KIT	FRP10.00-RV-KIT	FRP10.00-RV-PARTS

PURPOSE: The BEECO FRP is de-signed to eliminate contamination from cross connections in a potable water system. A cross connection is any physical connection between two separate systems, one of which contains drinking water and the other polluted or contaminated fluids, chemicals or sewage. Contaminated water may flow through cross connections and between connected systems as the direction of flow can reverse depending on the pressure differential of each system. The BEECO Friendly Reduced Pressure Zone Device is designed to protect against backpressure and back-siphonage and is de-signed for maximum protection in high hazard applications.

SIZING AND INSTALLATION GUIDE: The Beeco Reduced Pressure Zone Device is made to fit all standard pipe sizes from a 1/2" supply line up to a 10" main supply line. These valves can be installed in either indoor or outdoor applications but need to be protected against freezing in cold weather climates. All backflow devices must be installed by a licensed plumbing professional and must be installed according to your local and state plumbing codes. All Reduced Pressure Zone Devices must be retested each year by a trained licensed backflow specialist.

HOW IT WORKS: A method to provide maximum protection to you drinking water is the BEECO Friendly Reduced Pressure Backflow Device. It protects your potable water supply without the need to re-establish pressure by means of pumps or towers, and it comes with both two internal checks and a relief valve that will dump all fluids. The checks are spring loaded with the first check being stronger than the second check allowing the relief valve to dump contaminated fluid. Should a backpressure or back-siphonage occur in the system and start the flow of water in a reverse direction and the second check fails for any reason the relief valve will open while the first check continues to protect your water supply.

FEATURES AND BENEFITS: The new modern redesigned BEECO Reduced Pressure Zone Device was designed with input from hundreds of plumbers and many backflow specialists were involved. It was designed with ease of access and a dramatic reduction in the number of spare parts needed. The light weight, short lay length modular design makes this valve the easiest and quickest valve to perform your mandatory yearly recertification on. For a complete list of all our features and benefits see our BEECO MAKES IT EASY FOR YOU brochure in this catalog. The BEECO RPDA device shall provide protection where a potential health hazard exists. It incorporates a metered by-pass to detect leaks and unauthorized water use. The BEECO Reduced Pressure Zone Device is designed for installation on potable water lines connections in fire sprinkler systems to protect against both backsiphonage and backpressure of polluted water into the potable water supply. See our RPDA product offering on page 36 of this catalog.

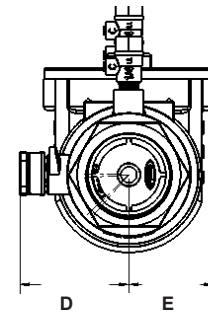
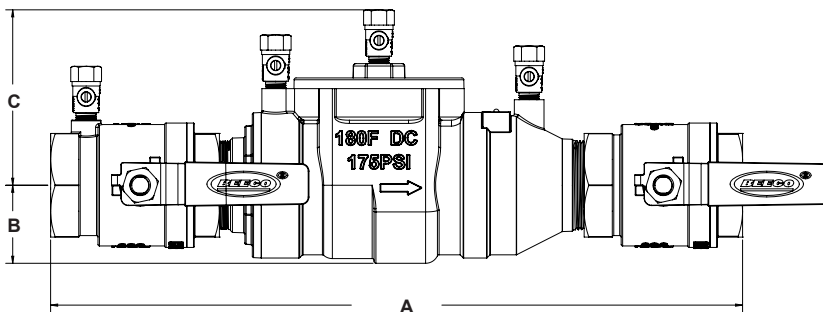
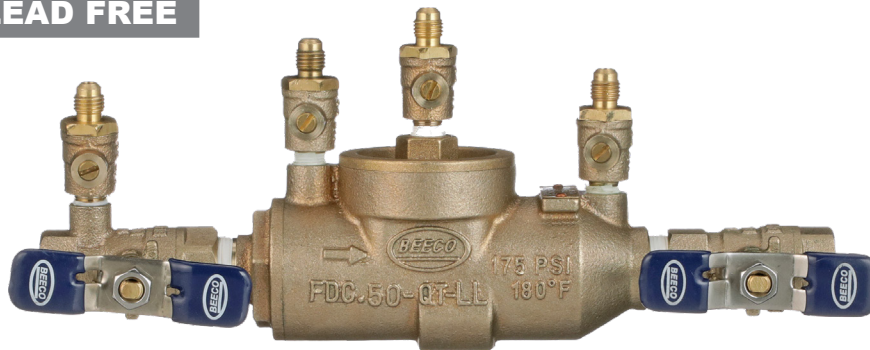
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SMALL FDC

Friendly Double Check Backflow Preventer (1/2", 3/4", 1", 1 3/4", 1 1/2" and 2")

Double check backflow preventers are for use on potable water lines where a health hazard does not exist in the event of a backflow situation. The checks are designed with a unique thumb screw holding in the disc to allow for easy removal of the check with a simple pair of pliers dramatically reducing part breakage during repair. The single threaded cover makes for the quickest access inside the valve in the industry. Repair parts are so modular it only takes three check repair kits to cover all sizes 1/2" through 2".

LEAD FREE



Maximum
working pressure:
175 psi.



Hydrostatic
test pressure:
350 psi.



Temperature
range:
33° F - 180° F

MODEL NO.	SIZE	A	B	C	D	E	WEIGHT
FDC.50-QT-LF	1/2" (13)	10 1/4" (260)	3 3/8" (86)	1 1/8" (29)	2" (51)	1 1/4" (32)	4 (1.8)
FDC.75-QT-LF	3/4" (19)	10 1/2" (266)	3 3/8" (86)	1 1/8" (29)	2 1/2" (64)	1 1/4" (32)	4.5 (2)
FDC1.00-QT-LF	1" (25)	12 1/2" (317)	3 1/2" (89)	1 3/8" (35)	2 1/2" (64)	1 1/2" (38)	6.4 (2.9)
FDC1.25-QT-LF	1 1/4" (32)	14 1/4" (262)	4 3/8" (111)	1 3/4" (44)	2 3/4" (70)	1 3/4" (44)	10 (4.5)
FDC1.50-QT-LF	1 1/2" (40)	14 3/4" (375)	4 3/8" (111)	1 3/4" (44)	3 3/8" (86)	1 3/4" (44)	12 (5.4)
FDC2.00-QT-LF	2" (51)	17 1/4" (438)	4 7/8" (124)	2" (51)	3 3/4" (86)	2 1/4" (57)	19 (8.5)

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INSTALLATION INSTRUCTIONS

1. Installation and selection of the proper device should be performed by qualified, licensed personnel.
2. Consult all local codes for proper installation requirements and restrictions.
3. The device must have adequate clearance for accessibility to perform maintenance and testing.
4. Prior to installation, the lines must be thoroughly flushed to remove any debris and foreign material. Debris in the lines can cause check valves to become fouled and require disassembly and cleaning of the device.
5. The device must be protected from freezing conditions and excessive pressure increases. Excessive line pressure can be caused by thermal expansion and or water hammer. Shock arrestors, check valves and/or pressure relief valves should be installed down stream of the device to protect excessive pressure.
6. Vertical assemblies can be installed when the inlet and outlet piping are flowing upward.

PLACING IN SERVICE:

Placing the unit in operation after proper installation is complete.

1. Start with the inlet and outlet ball valves closed.
2. Slowly open the inlet ball valve to pressurize the backflow preventer device.
3. Vent trapped air within the device by bleeding #3 and #4 test cocks.
4. Slowly open outlet ball valve.
5. Test the device after it is properly installed. If device fails the test, remove the two check valves and thoroughly flush the device. Check and clean all the rubber and seats from debris. Reinstall and place unit back in service and retest the device.

SERVICE AND MAINTENANCE

CHECK VALVE REMOVAL:

1. Close the inlet and outlet ball valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks open until reassembly.
2. Remove cover by unthreading with appropriate wrench.
3. Remove the check valve spacer by pulling up from opening.
4. Remove the inlet check valve assembly by pulling it in the direction of flow until free from the body and then lift out.

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5. Remove the outlet check valve assembly by grasping the flattened nut on the end of the check assembly with pliers. Then pull in the opposite direction of flow until it is free from the body and lift out by hand.

MAINTENANCE:

1. Rinse all parts thoroughly with water after disassembly.
2. Carefully inspect rubber seals, seats and o-rings for damage and debris.
3. Apply Dow Corning 111 Valve Lubricant & Seal to the O-Rings before reinstallation.
4. Test the device after reassembly to ensure proper operation.

TESTING PROCEDURE

Open the inlet ball valve and close the outlet ball valve. Flush all test cocks prior to testing.

TEST FUNCTIONING OF FIRST CHECK ASSEMBLY:

- Connect the high side hose of gauge to the 2nd test cock. Connect the low side hose of the gauge to the 3rd test cock. Open the 2nd and 3rd test cocks. Bleed the high and low side of the test gauge. If pressure differential reading is above 1 psi, then the check is considered good. Close test cocks and remove hoses.

TEST FUNCTIONING OF SECOND CHECK ASSEMBLY:

- Connect the high side hose of gauge to the 3rd test cock. Connect the low side hose of the gauge to the 4th test cock. Open the 3rd and 4th test cocks. Bleed the high and low side of the test gauge. If pressure differential reading is above 1 psi, then the check is considered good. Close test cocks and remove hoses.

The test is complete and the device is ready for service.

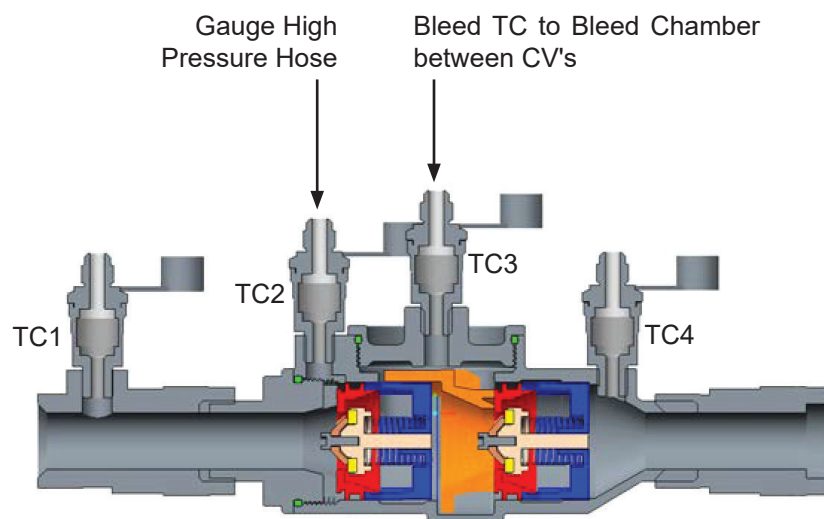
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TESTING PROCEDURES & TROUBLE SHOOTING

Double Check Backflow Preventer (1/2", 3/4", 1", 1 1/4", 1 1/2" & 2")	
PROBLEM	PROBABLE CAUSES
No flow	Device installed backwards. Upstream or downstream gate valves not open. Clogged strainer or clogged device.
Low flow	Low supply pressure. Pressure drop through the device. Device's gate valves not opened completely
Leaking Check Valves	Debris on seat area or seal Damaged seat area Damaged seal

FIRST CHECK VALVE TEST:

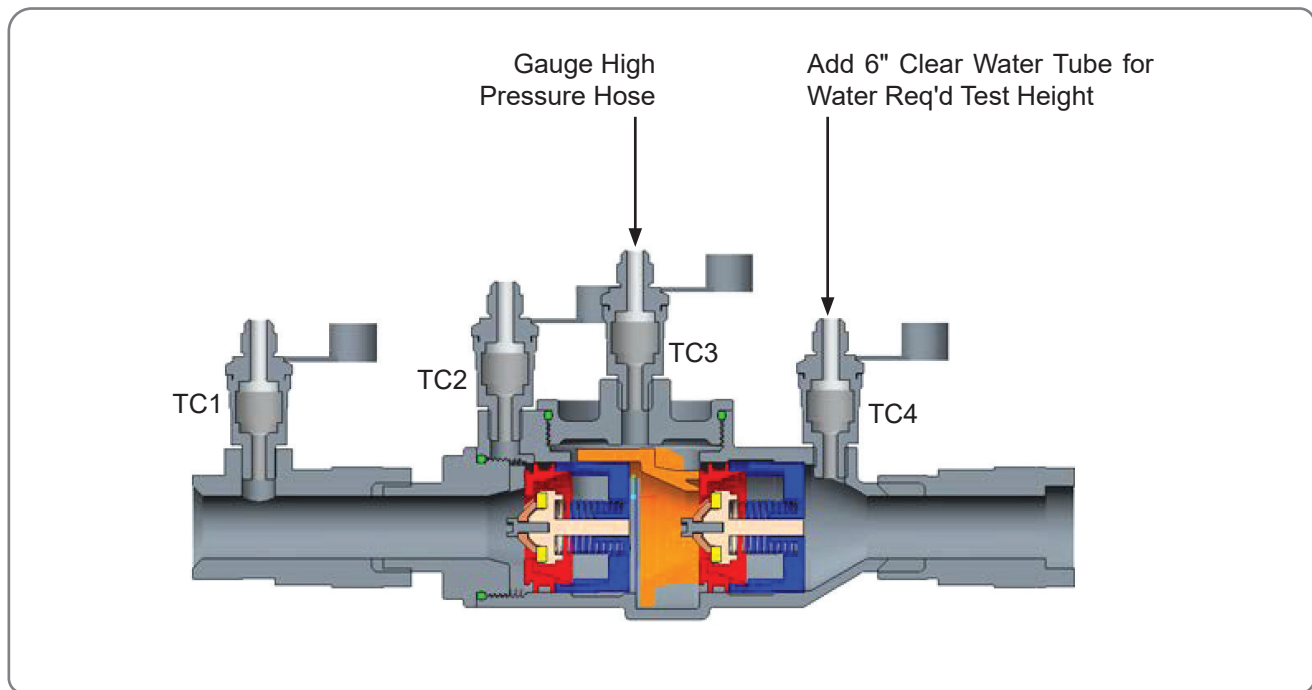
1. Bleed all test cocks.
2. Attach high side hose with bleed off valve to TC2. Then, bleed TC2 through the high side needle valve.
3. Open TC3 and let the water run out, then close TC3.
4. Close SOV2. Hold the test gauge such that the center of the test gauge is at the same height as the top of TC3. Close SOV1.
5. Slowly open TC3. Once the water stops running, record the pressure indicated by the test kit. This is the pressure differential across CV1.



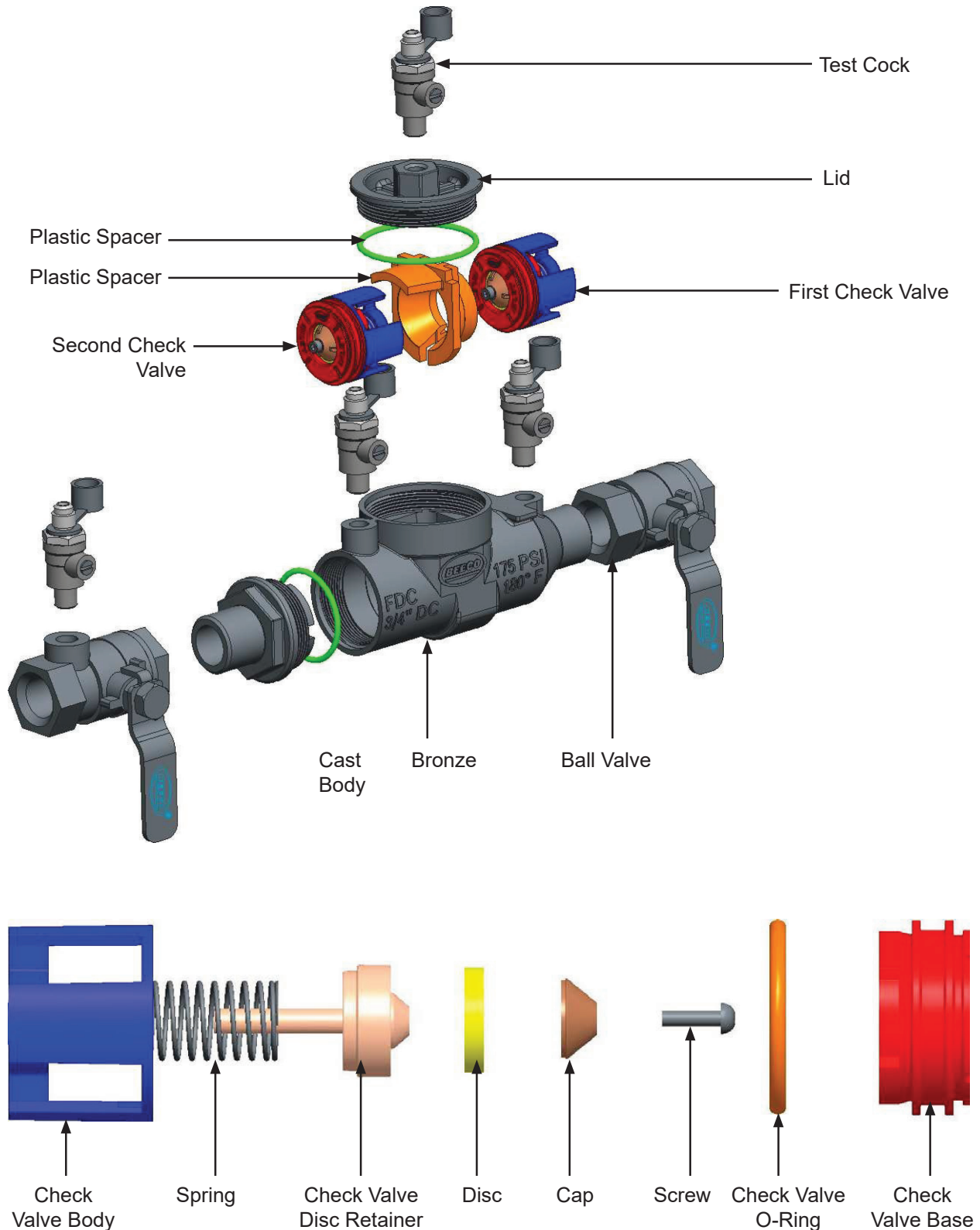
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SECOND CHECK VALVE TEST:

1. Attach high side hose with bleed off valve to TC3.
2. Attach a 6" clear tube TC4 so that it is the highest point of the check valve body.
3. Bleed TC3 through the high side needle valve. Close the needle valve and open TC4 to let the water run out.
4. Hold the test gauge such that the center of the test gauge is at the same height as the top of the water in the clear tube attached to TC4. Once TC4 and the tube are filled, close TC4.
5. Close the first shut off valve (SOV1) on the FDC.
6. Open TC4 slightly and let water flow out of the tube.
7. Once the water stops running, record the pressure from the test kit, this is the pressure differential across the second check valve.



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Design and dimensions are subject to modification. Prices do not include applicable taxes.

Visit www.beecobackflow.com for the most recent product information.

BEECO, Inc., 1321 West 119th Street, Chicago, Illinois 60643-5109, USA

All sales subject to BEECO's Terms and Warranties. Please refer to page no. 34.

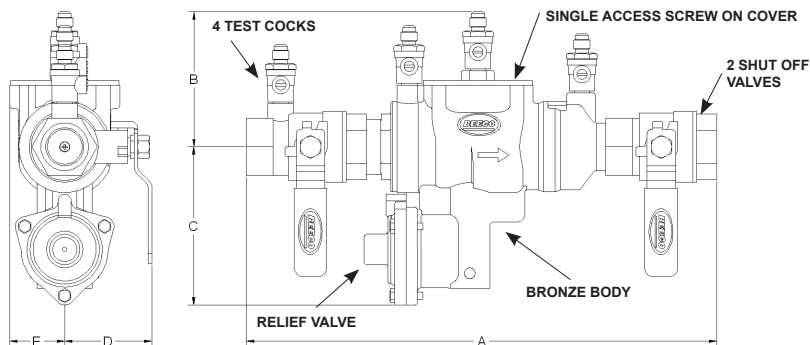
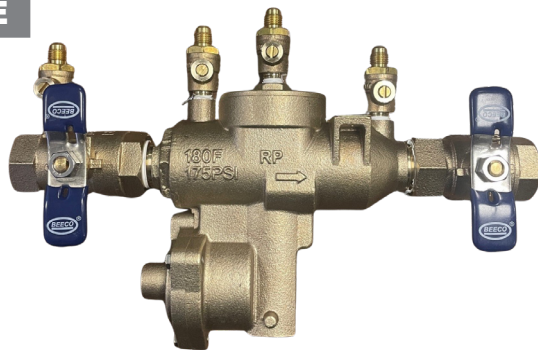
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SMALL FRP

Friendly Reduced Pressurezone Backflow Preventer (1/2", 3/4", 1", 1 1/4", 1 1/2" and 2")

The checks are designed with a unique thumb screw holding in the disc to allow for easy removal of the check with a simple pair of pliers dramatically reducing part breakage during repair. The single threaded cover makes for the quickest access inside the valve in the industry. Repair parts are so modular it only takes two relief valve kits and three check repair kits to cover all sizes 1/2" through 2".

LEAD FREE



**Maximum
working pressure:
175 psi.**



**Hydrostatic
test pressure:
350 psi.**



**Temperature
range:
33° F - 180° F**

MODEL NO.	SIZE	A	B	C	D	E	WEIGHT
FRP.50-QT-LF	1/2" (13)	10 1/2" (260)	3 3/8" (86)	4" (102)	2" (51)	1 1/4" (32)	5.5 (2.5)
FRP.75-QT-LF	3/4" (19)	11 1/8" (280)	3 3/8" (86)	4" (102)	2 1/2" (64)	1 1/4" (32)	6 (2.7)
FRP1.00-QT-LF	1" (25)	12 3/4" (320)	3 1/2" (89)	4 1/8" (105)	2 1/2" (64)	1 1/2" (38)	9 (4.1)
FRP1.25-QT-LF	1 1/4" (32)	16 1/4" (610)	4 3/8" (111)	6 5/8" (168)	2 3/4" (70)	1 3/4" (44)	13 (5.9)
FRP1.50-QT-LF	1 1/2" (38)	16 3/4" (425)	4 3/8" (111)	6 5/8" (168)	3 3/8" (86)	1 3/4" (44)	17 (7.7)
FRP2.00-QT-LF	2" (51)	17 1/2" (445)	4 7/8" (124)	6 5/8" (168)	3 3/8" (86)	2 1/4" (57)	26 (11.8)

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INSTALLATION INSTRUCTIONS

1. Installation and selection of the proper device should be performed by qualified, licensed personnel.
2. Consult all local codes for proper installation requirements and restrictions.
3. The device must have adequate clearance for accessibility to perform maintenance and testing.
4. The device must be located where discharge from the relief valve is acceptable.
NOTE: The air gap is designed to handle periodic discharge. A proper floor drain may need to be installed to handle full discharge during certain backflow conditions.
5. Prior to installation, the lines must be thoroughly flushed to remove any debris and foreign material. Debris in the lines can cause check valves to become fouled and require disassembly and cleaning of the device.
6. The device must be protected from freezing conditions and excessive pressure increases. Excessive line pressure can be caused by thermal expansion and or water hammer. Shock arrestors, check valves and/or pressure relief valves should be installed down stream of the device to protect excessive pressure.

PLACING IN SERVICE:

Placing the unit in operation after proper installation is complete.

1. Start with the inlet and outlet ball valves closed.
2. Slowly open the inlet ball valve to pressurize the backflow preventer device.
3. Vent trapped air within the device by bleeding #2, #3 and #4 test cocks.
4. Slowly open outlet ball valve.
5. Test the device after it is properly installed. If device fails the test, check and clean all the rubber and seats from debris. Reinstall and place unit back in service, retest the device.

SERVICE AND MAINTENANCE

CHECK VALVE REMOVAL:

1. Close the inlet and outlet ball valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks open until reassembly.
2. Remove cover by unthreading with appropriate wrench.
3. Remove the check valve spacer by pulling up from opening.
4. Remove the inlet check valve assembly by pulling it in the direction of flow until free from

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Small FRP

the body and then lift out.

5. Remove the outlet check valve assembly by grasping the flattened nut on the end of the check assembly with pliers. Then pull in the opposite direction of flow until it is free from the body and lift out by hand.

RELIEF VALVE REMOVAL:

1. Close the inlet and outlet shut off valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks open until reassembly.
2. Cover has slight spring pressure. Firmly hold cover and remove the Cover Bolts and Cover. The Relief Valve Assembly will pull out from the body.

MAINTENANCE:

1. Rinse all parts thoroughly with water after disassembly.
2. Carefully inspect rubber seals, seats and o-rings for damage and debris.
3. Apply Dow Corning 111 Valve Lubricant & Seal to the O-Rings before reinstallation.
4. Test the device after reassembly to ensure proper operation.

TESTING PROCEDURE:

Testing should be performed by qualified, licensed personnel. Testing procedure should be performed per local codes and guidelines.

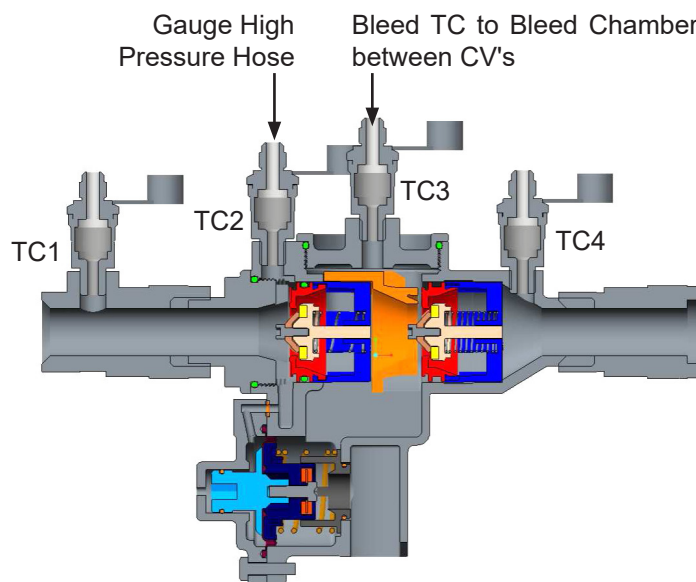
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TESTING PROCEDURES & TROUBLE SHOOTING

Friendly Reduced Pressurezone Backflow Preventer (1/2", 3/4", 1", 1 1/4", 1 1/2" & 2")	
PROBLEM	PROBABLE CAUSES
No flow	Device installed backwards. Upstream or downstream gate valves not open. Clogged strainer or clogged device.
Low flow	Low supply pressure. Pressure drop through the device. Device's gate valves not opened completely.
Leaking Check Valves	Debris on seat area or seal Damaged seat area Damaged seal
Constant drip or drain from vent	If occurs when no call for water only, indicates fouled first check valve. If under flow, indicates that either relief valve mechanism is malfunctioning or first check is fouled. Can be verified by test.
Relief valve fails to open during test	Blockage in relief valve supply tubing or internal passage. Physical blockage of relief valve. Device is in a flow condition due to leaking downstream gate valve. Relief valve mechanism is malfunctioning.
Intermittent drip or "dump" from vent	Fluctuating supply pressure.

FIRST CHECK VALVE TEST:

1. Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.



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Small FRP

2. Testing Procedures & Trouble Shooting Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).
3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Attach a bypass hose from the high side bleed needle valve to TC4. Open TC4.
7. Open the low side bleed needle valve. Allow the pressure to build and close the low side needle valve. When the reading settles, this is the pressure differential across CV1, record the value.

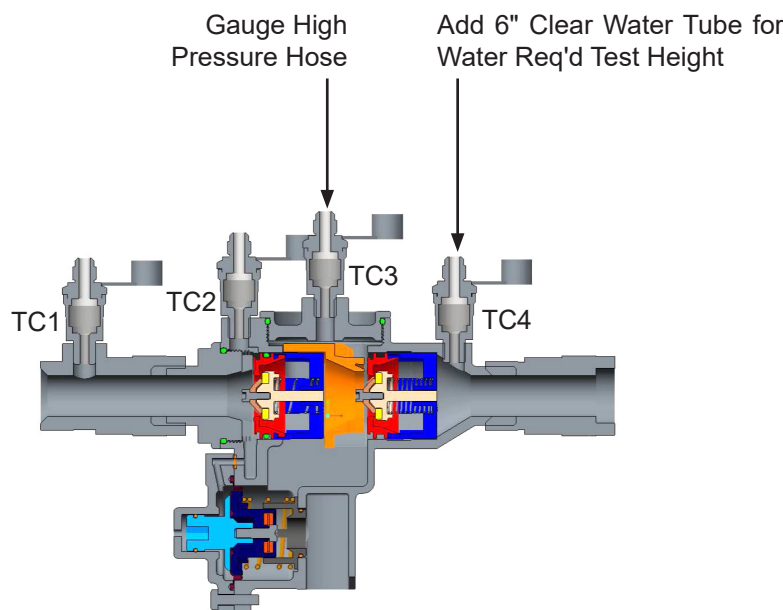
RELIEF VALVE TEST:

1. Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.
2. Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).
3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Open the high side needle valve and bleed the high side hose.
7. Close SOV2.
8. Close the high side needle valve. Once the test kit has pressurized, slowly close the low side needle valve.
9. If test kit pressure drops and the relief valve opens, CV1 is leaking. If the Test kit pressure holds, proceed to step 10.
10. Attach a bypass hose from the low side bleed needle valve to the high side bleed needle valve.
11. Open the high side needle valve one turn, then slowly open the low side needle valve one quarter
12. turn. Record the pressure when the water begins to discharge from the relief valve.

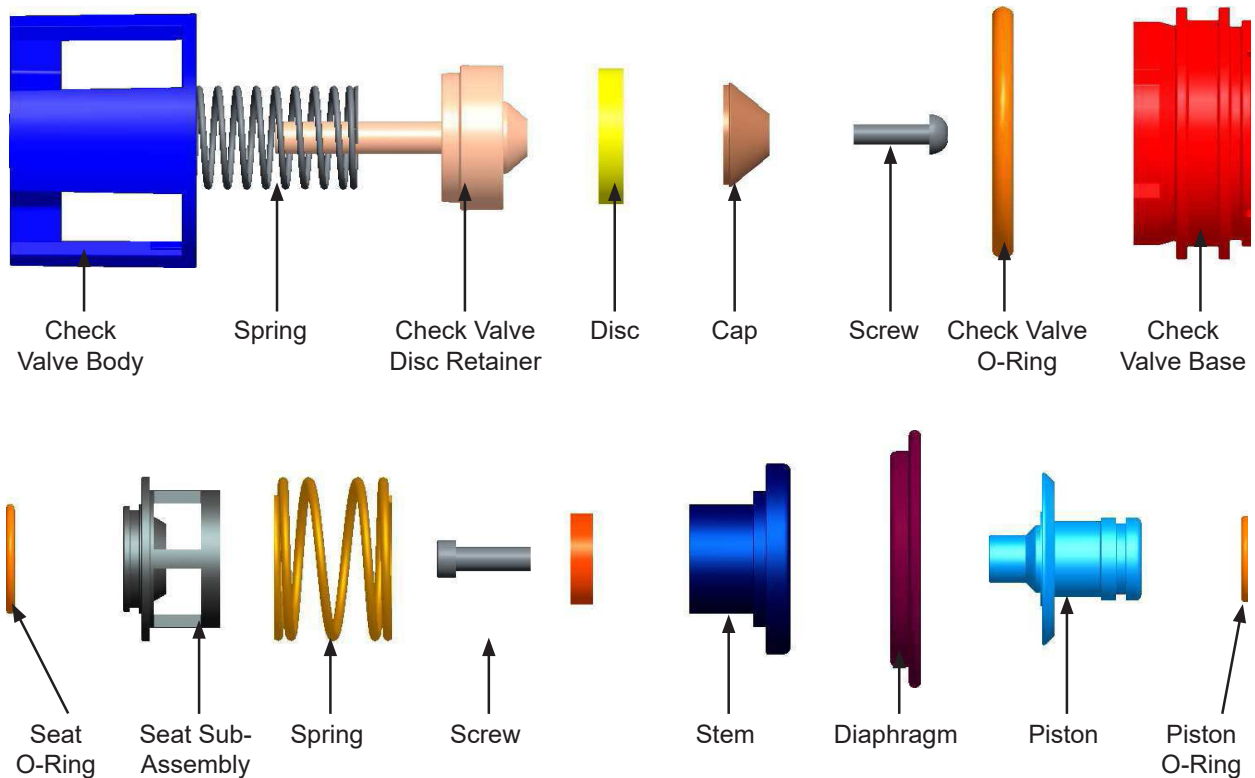
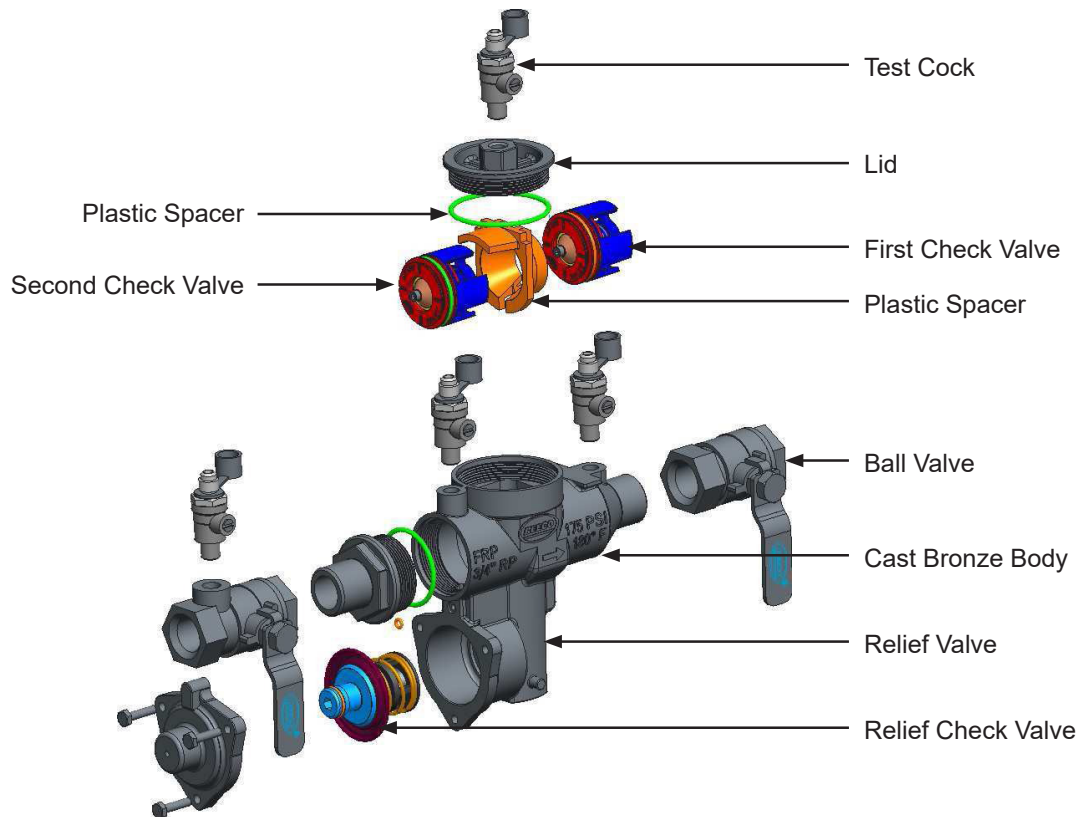
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SECOND CHECK VALVE TEST:

1. Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.
2. Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).
3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Open the high side needle valve and bleed the high side hose.
7. Close SOV2.
8. Attach a bypass hose from the high side bleed needle valve to TC4. Open TC4.
9. Open the low side bleed needle valve. Allow the pressure to build beyond the recorded differential for CV1 and close the low side needle valve.
10. Open the high side bleed needle valve. If the pressure holds, CV2 is sealed properly.



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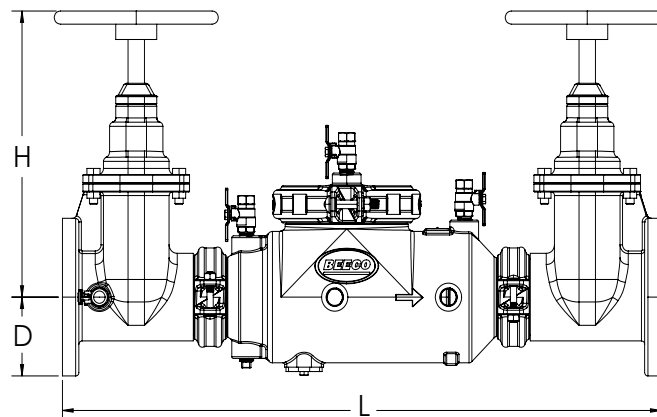
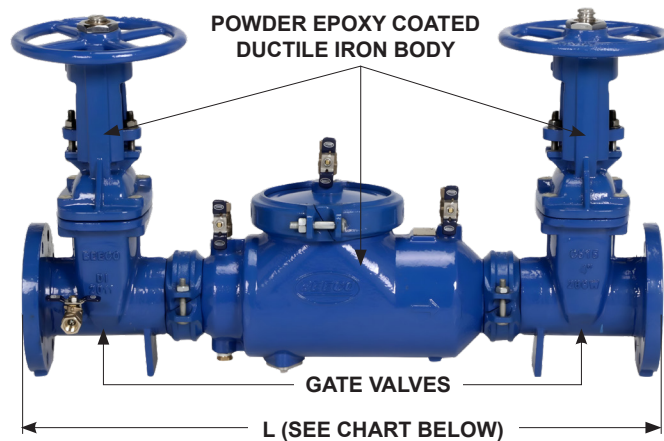
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LARGE FDC

Friendly Double Check Backflow Preventer (2½", 3", 4", 6", 8" and 10")

Single access cover for fast service. Swing away clamp for ease of removing checks. Modular design reducing number of repair parts.

LEAD FREE



Maximum
working pressure:
175 psi.



Hydrostatic
test pressure:
350 psi.



Temperature
range:
33° F - 180° F

MODEL NO.	SIZE	L	H OSY OPEN	H NRS	D	FLANGE BOLT TORQUE (FT-LBS.)
FDC2.50	2 1/2"	33.5	18.88	16.38	7	7
FDC3.00	3"	34.5	21.88	18.88	7.5	7.5
FDC4.00	4"	40.8	25.63	21.63	9	9
FDC6.00	6"	43.8	35.13	29.13	11	11
FDC8.00	8"	56.5	44.63	36.63	13.5	13.5
FDC10.00	10"	59.5	54.5	44.5	16	16

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Large FDC

INSTALLATION INSTRUCTIONS

Double check backflow preventers are for use on potable water lines where a health hazard does not exist in the event of a backflow situation.

1. Installation and selection of the proper device should be performed by qualified, licensed personnel.
2. Consult all local codes for proper installation requirements and restrictions.
3. The device must have adequate clearance for accessibility to perform maintenance and testing.
4. Prior to installation, the lines must be thoroughly flushed to remove any debris and foreign material. Debris in the lines can cause check valves to become fouled and require disassembly and cleaning of the device.
5. The device must be protected from freezing conditions and excessive pressure increases. Excessive line pressure can be caused by thermal expansion and or water hammer. Shock arrestors, check valves and/or pressure relief valves should be installed down stream of the device to protect excessive pressure.
6. Vertical assemblies can be installed when the inlet and outlet piping are flowing upward.

PLACING IN SERVICE:

Placing the unit in operation after proper installation is complete.

1. Start with the inlet and outlet shut off valves closed.
2. Slowly open the inlet shut off valve to pressurize the backflow preventer device.
3. Vent trapped air within the device by bleeding #3 and #4 test cocks.
4. Slowly open outlet shut off valve.
5. Test the device after it is properly installed. If device fails the test, remove the two check valves and thoroughly flush the device. Check and clean all the rubber and seats from debris. Reinstall and place unit back in service and retest the device.

SERVICE AND MAINTENANCE

CHECK VALVE REMOVAL:

1. Close the inlet and outlet shut off valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks open until reassembly.
2. Remove cover by removing coupling on the lid.
3. Remove 1st check valve by compressing and pulling out the check valve retainer. Insert

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a screwdriver into the tabs on the front of the check valve and pull check valve in the direction of flow until it is free from the body then lift out.

4. To remove 2nd check valve, compress the wire retainer and remove. Remove the retainer spacer. Grasp check valve from the spring and pull in the opposite direction of flow until check valve is free from the body then lift out

MAINTENANCE:

1. Rinse all parts thoroughly with water after disassembly.
2. Carefully inspect rubber seals, seats and o-rings for damage and debris.
3. Apply Dow Corning 111 Valve Lubricant & Seal to the O-Rings before reinstallation.
4. Test the device after reassembly to ensure proper operation.

TESTING PROCEDURE

Open the inlet shutoff valve and close the outlet shutoff valve. Flush all test cocks prior to testing.

TEST FUNCTIONING OF FIRST CHECK ASSEMBLY:

- Connect the high side hose of gauge to the 2nd test cock. Connect the low side hose of the gauge to the 3rd test cock. Open the 2nd and 3rd test cocks. Bleed the high and low side of the test gauge. If pressure differential reading is above 1 psi, then the check is considered good. Close test cocks and remove hoses.

TEST FUNCTIONING OF SECOND CHECK ASSEMBLY:

- Connect the high side hose of gauge to the 3rd test cock. Connect the low side hose of the gauge to the 4th test cock. Open the 3rd and 4th test cocks. Bleed the high and low side of the test gauge. If pressure differential reading is above 1 psi, then the check is considered good. Close test cocks and remove hoses.

The test is complete and the device is ready for service.

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TESTING PROCEDURES & TROUBLE SHOOTING

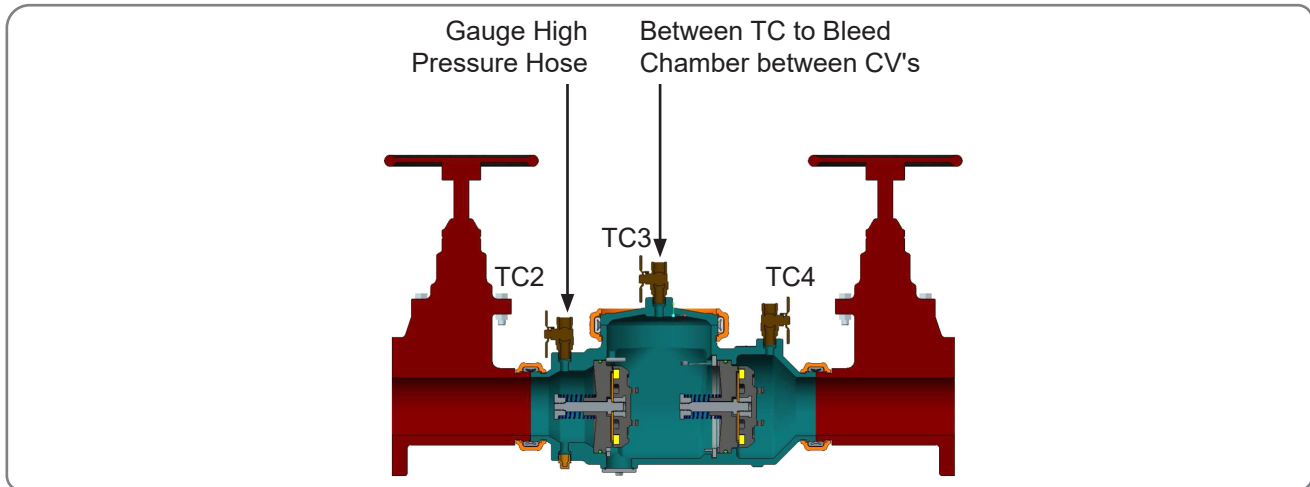
Friendly Double Check Backflow Preventer (2 1/2", 3", 4", 6", 8" and 10")	
PROBLEM	PROBABLE CAUSES
No flow	Device installed backwards. Upstream or downstream gate valves not open. Clogged strainer or clogged device.
Low flow	Low supply pressure. Pressure drop through the device. Device's gate valves not opened completely.
Leaking Check Valves	Debris on seat area or seal Damaged seat area Damaged seal
Valve quickly and repeatedly fouls following servicing	Debris in pipe line due to inadequate flushing.
Low first check differential	Damaged or dirty disc. Damaged or dirty first check valve. Fouled first check valve. Damaged spring (rare).
High first check differential	Downstream gate valve leaking severely and device is in a flow condition.
Hum or buzz	Gate valve supplied with the device not fully opened. Air is trapped inside the device.
Rapid degrading of internal rubber parts	Cold water device operating with hot water. Chemical degradation of elastomers due to aggressive action of foreign chemicals in water.
Inconsistent, erratic, or "impossible" test kit readings	Test kit hoses not hooked up to correct device test cocks. Test kit defective due to having been subjected to impact or freezing.
High pressure drop	Fouled strainer. Device too small for flows encountered.

FIRST CHECK VALVE TEST:

1. Bleed all test cocks.
2. Attach high side hose with bleed off valve to TC2. Then, bleed TC2 through the high side needle valve.
3. Open TC3 and let the water run out, then close TC3.
4. Close SOV2. Hold the test gauge such that the center of the test gauge is at the same height as the top of TC3. Close SOV1.

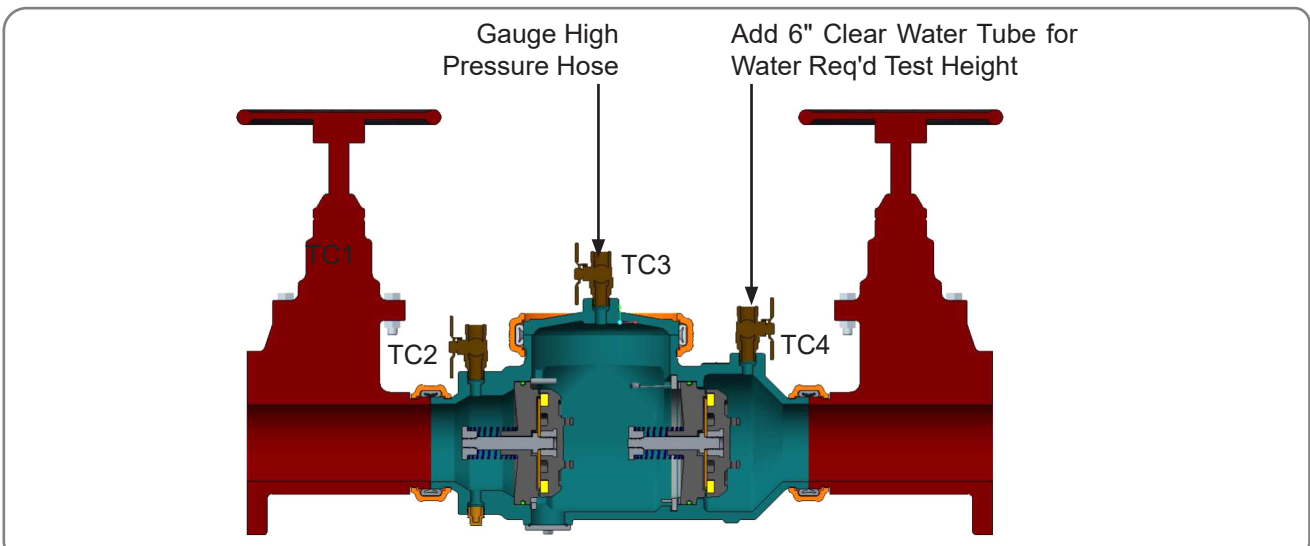
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5. Slowly open TC3. Once the water stops running, record the pressure indicated by the test kit. This is the pressure differential across CV1.

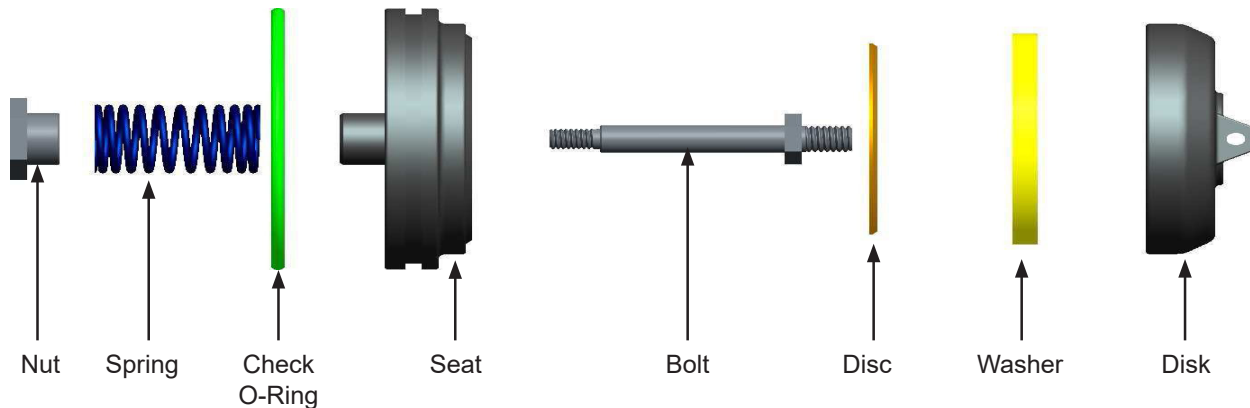
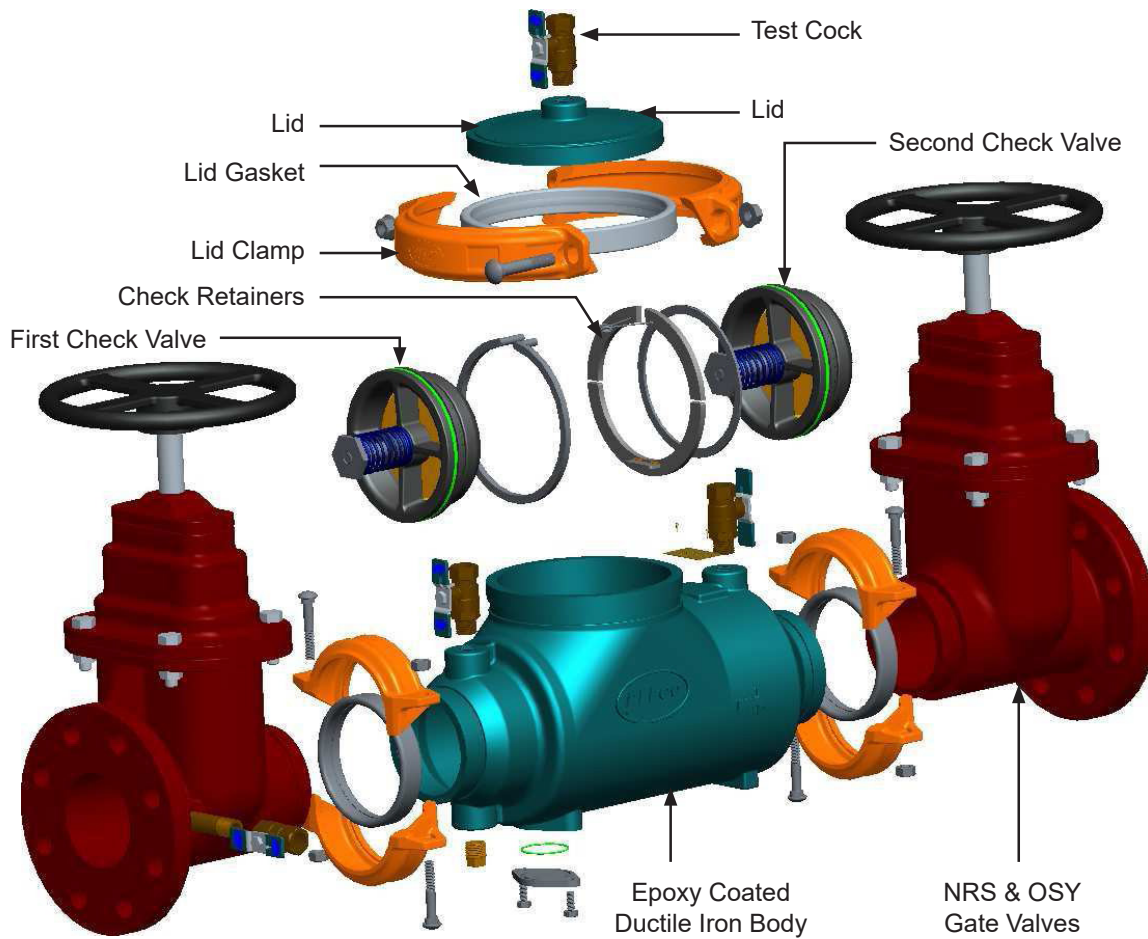


SECOND CHECK VALVE TEST:

1. Bleed all test cocks.
2. Attach high side hose with bleed off valve to TC2. Then, bleed TC2 through the high side needle valve.
3. Open TC3 and let the water run out, then close TC3.
4. Close SOV2. Hold the test gauge such that the center of the test gauge is at the same height as the top of TC3. Close SOV1.
5. Slowly open TC3. Once the water stops running, record the pressure indicated by the test kit. This is the pressure differential across CV1.



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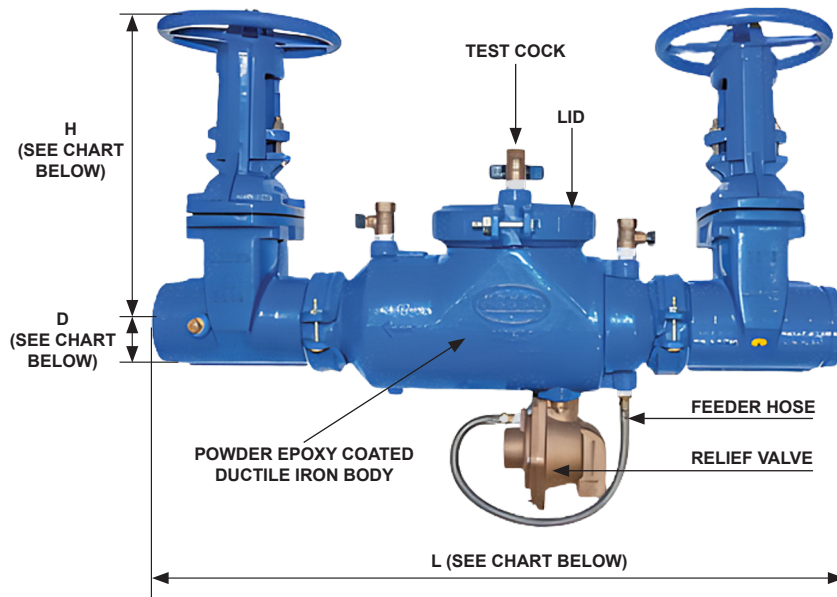
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LARGE FRP

Friendly Reduced Pressurezone Backflow Preventer (2½", 3", 4", 6", 8" and 10")

Reduced Pressure Zone Assemblies are to protect potable water supply from hazardous materials during a backflow situation. Single access cover for fast service. Swing away clamp for ease of removing checks. Modular design reducing number of spare parts. Self contained check so there is no pressure to relieve when changing the seats. The relief valve like the checks are easily repairable in line and is positioned for maximum protection in the vertical up position.

LEAD FREE



Maximum
working pressure:
175 psi.



Hydrostatic
test pressure:
350 psi.



Temperature
range:
33° F - 180° F

MODEL NO.	SIZE	A	B	C	D	E	WEIGHT
FRP2.50	2 1/2"	33.5	18.88	16.38	9.75	1 1/4" (32)	5.5 (2.5)
FRP3.00	3"	34.5	21.88	18.88	9.75	1 1/4" (32)	6 (2.7)
FRP4.00	4"	40.8	25.63	21.63	9.75	1 1/2" (38)	9 (4.1)
FRP6.00	6"	43.8	35.13	29.13	11.25	1 3/4" (44)	13 (5.9)
FRP8.00	8"	56.5	44.63	36.63	15.75	1 3/4" (44)	17 (7.7)
FRP10.00	10"	59.5	54.5	44.5	15.75	2 1/4" (57)	26 (11.8)

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INSTALLATION INSTRUCTIONS

Reduced Pressure Zone Assemblies are to protect potable water supply from hazardous materials during a backflow situation..

1. Installation and selection of the proper device should be performed by qualified, licensed personnel.
2. Consult all local codes for proper installation requirements and restrictions.
3. The device must have adequate clearance for accessibility to perform maintenance and testing.
4. The device must be located where discharge from the relief valve is acceptable.
NOTE: The air gap is designed to handle periodic discharge. A proper floor drain may need to be installed to handle full discharge during certain backflow conditions.
5. Prior to installation, the lines must be thoroughly flushed to remove any debris and foreign material. Debris in the lines can cause check valves to become fouled and require disassembly and cleaning of the device.
6. The device must be protected from freezing conditions and excessive pressure increases. Excessive line pressure can be caused by thermal expansion and or water hammer. Shock arrestors, check valves and/or pressure relief valves should be installed down stream of the device to protect excessive pressure.
7. Flange Bolt Torque; 2-1/2" & 3" is 70 ft-lbs, 4" is 75 ft-lbs, 6" & 8" is 130 ft-lbs, & 10" is 180 ft-lbs..

PLACING IN SERVICE:

Placing the unit in operation after proper installation is complete.

1. Start with the inlet and outlet shut off valves closed.
2. Slowly open the inlet shut off valve to pressurize the backflow preventer device.
3. Vent trapped air within the device by bleeding #2, #3 and #4 test cocks.
4. Slowly open outlet shut off valve.
5. Test the device after it is properly installed. If device fails the test, check and clean all the rubber and seats from debris. Reinstall and place unit back in service, retest the device.

SERVICE AND MAINTENANCE

CHECK VALVE REMOVAL:

1. Close the inlet and outlet shut off valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks

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open until reassembly.

2. Remove cover by removing coupling on the lid.
3. Remove 1st check valve by compressing and pulling out the check valve retainer. Insert a screwdriver into the tabs on the front of the check valve and pull check valve in the direction of flow until it is free from the body then lift out.
4. To remove 2nd check valve, compress the retainer spring and remove the spring half of the retainer. Remove the retainer half remaining. Remove the retainer spacer. Grasp check valve from the spring and pull in the opposite direction of flow until check valve is free from the body then lift out.

RELIEF VALVE REMOVAL:

1. Close the inlet and outlet shut off valves. Open No. 2, 3 and 4 test cocks to reduce remaining pressure in the assembly. Test cock No. 1 will remain closed. Keep test cocks open until reassembly.
2. Remove pressure line from the Relief Valve.
3. Cover has slight spring pressure. Firmly hold cover and remove the Cover Bolts and Cover. The Relief Valve Assembly will pull out from the body.

MAINTENANCE:

1. Rinse all parts thoroughly with water after disassembly.
2. Carefully inspect rubber seals, seats and o-rings for damage and debris.
3. Apply Dow Corning 111 Valve Lubricant & Seal to the O-Rings before reinstallation.
4. Refer to BEECO FRV4 Assembly for FRV installation guidance.
5. Test the device after reassembly to ensure proper operation

TESTING PROCEDURE:

Testing should be performed by qualified, licensed personnel. Testing procedure should be performed per local codes and guidelines.

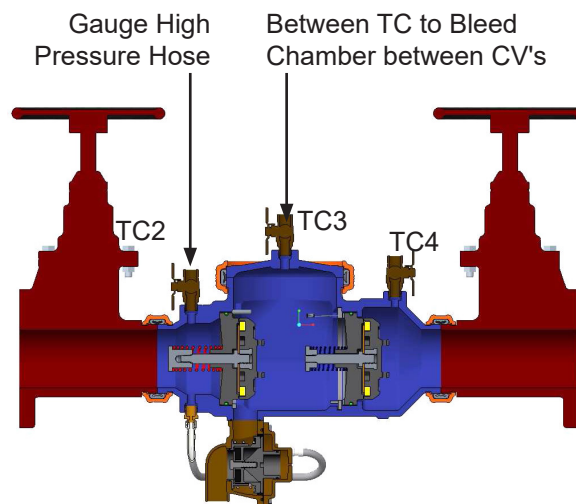
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TESTING PROCEDURES & TROUBLE SHOOTING

Friendly Reduced Pressurezone Backflow Preventer (2½", 3", 4", 6", 8" and 10")	
PROBLEM	PROBABLE CAUSES
No flow	Device installed backwards. Upstream or downstream gate valves not open. Clogged strainer or clogged device.
Low flow	Low supply pressure. Pressure drop through the device. Device's gate valves not opened completely.
Leaking Check Valves	Debris on seat area or seal Damaged seat area Damaged seal
Constant drip or drain from vent	If occurs when no call for water only, indicates fouled first check valve. If under flow, indicates that either relief valve mechanism is malfunctioning or first check is fouled. Can be verified by test.
Relief valve fails to open during test	Blockage in relief valve supply tubing or internal passage. Physical blockage of relief valve. Device is in a flow condition due to leaking downstream gate valve. Relief valve mechanism is malfunctioning.
Intermittent drip or "dump" from vent	Fluctuating supply pressure.

FIRST CHECK VALVE TEST:

1. Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.



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2. Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).
3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Attach a bypass hose from the high side bleed needle valve to TC4. Open TC4.
7. Open the low side bleed needle valve. Allow the pressure to build and close the low side needle valve. When the reading settles, this is the pressure differential across CV1, record the value.

RELIEF VALVE TEST:

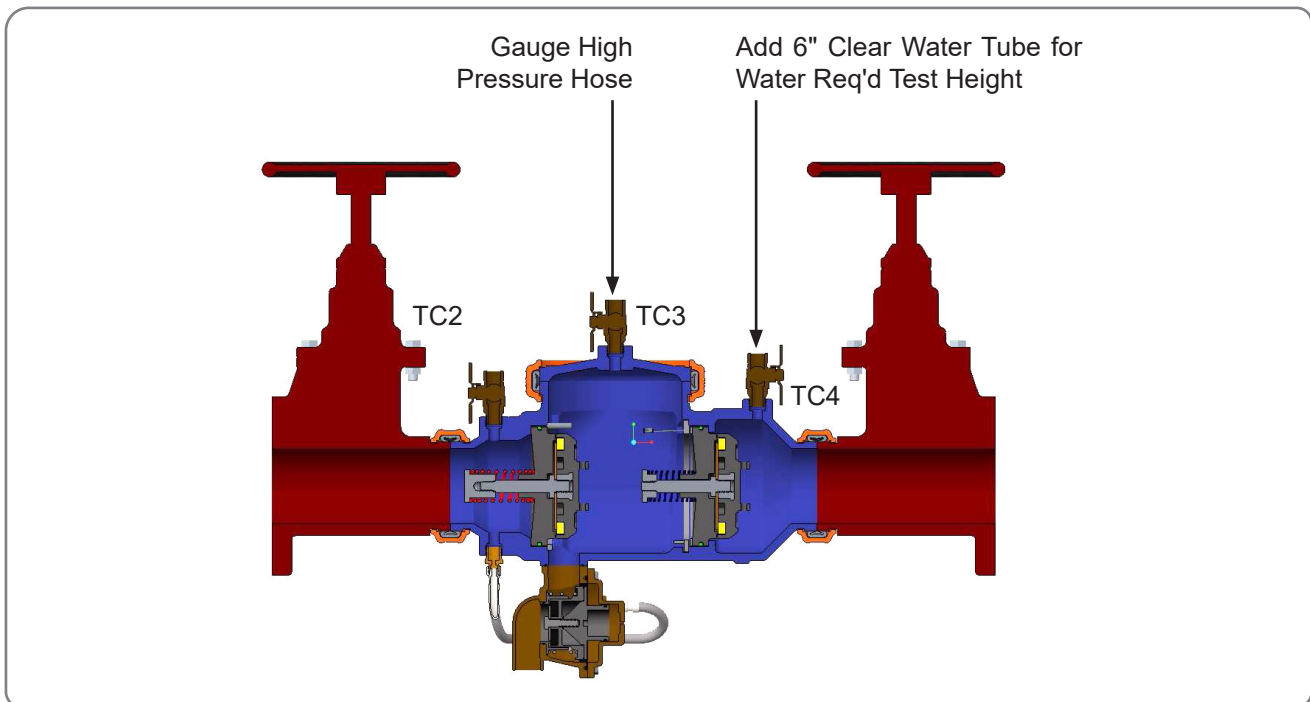
1. Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.
2. Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).
3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Open the high side needle valve and bleed the high side hose.
7. Close SOV2.
8. Close the high side needle valve. Once the test kit has pressurized, slowly close the low side needle valve.
9. If test kit pressure drops and the relief valve opens, CV1 is leaking. If the Test kit pressure holds, proceed to step 10.
10. Attach a bypass hose from the low side bleed needle valve to the high side bleed needle valve.
11. Open the high side needle valve one turn, then slowly open the low side needle valve onequarter turn. Record the pressure when the water begins to discharge from the relief valve.

SECOND CHECK VALVE TEST:

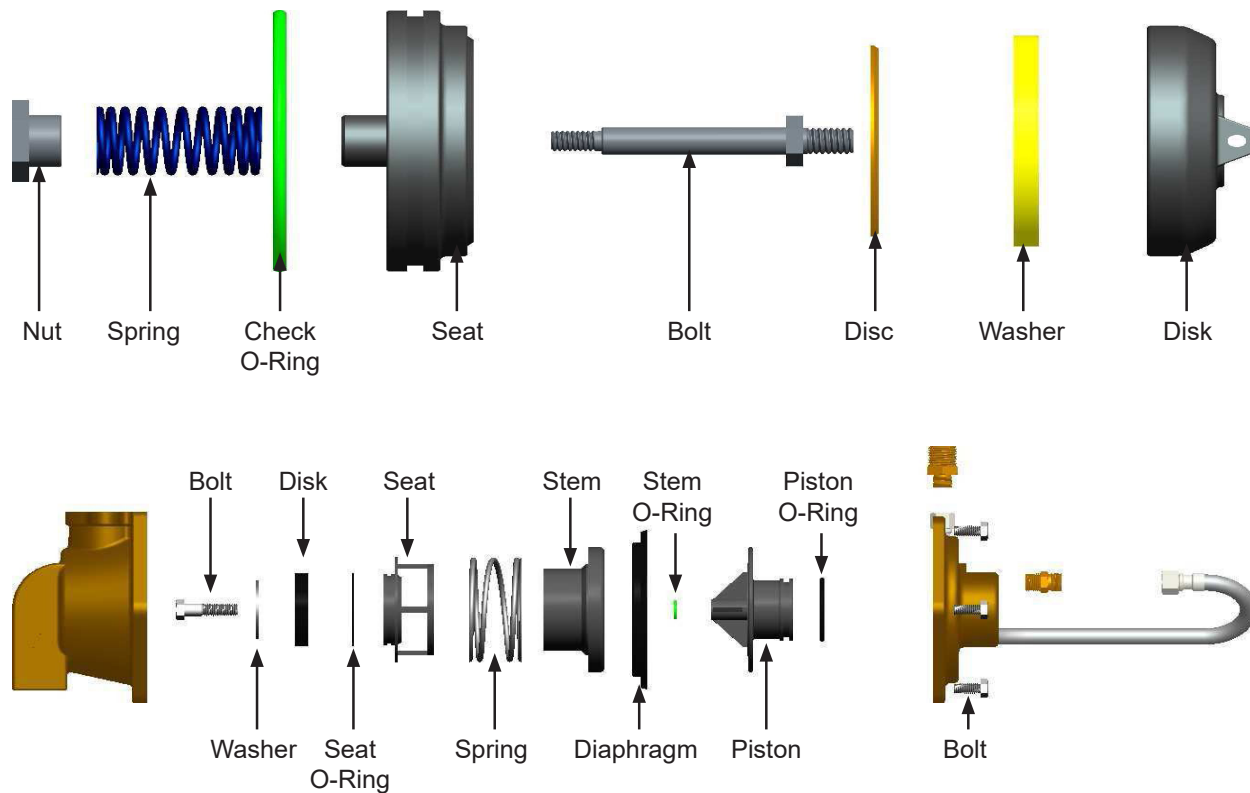
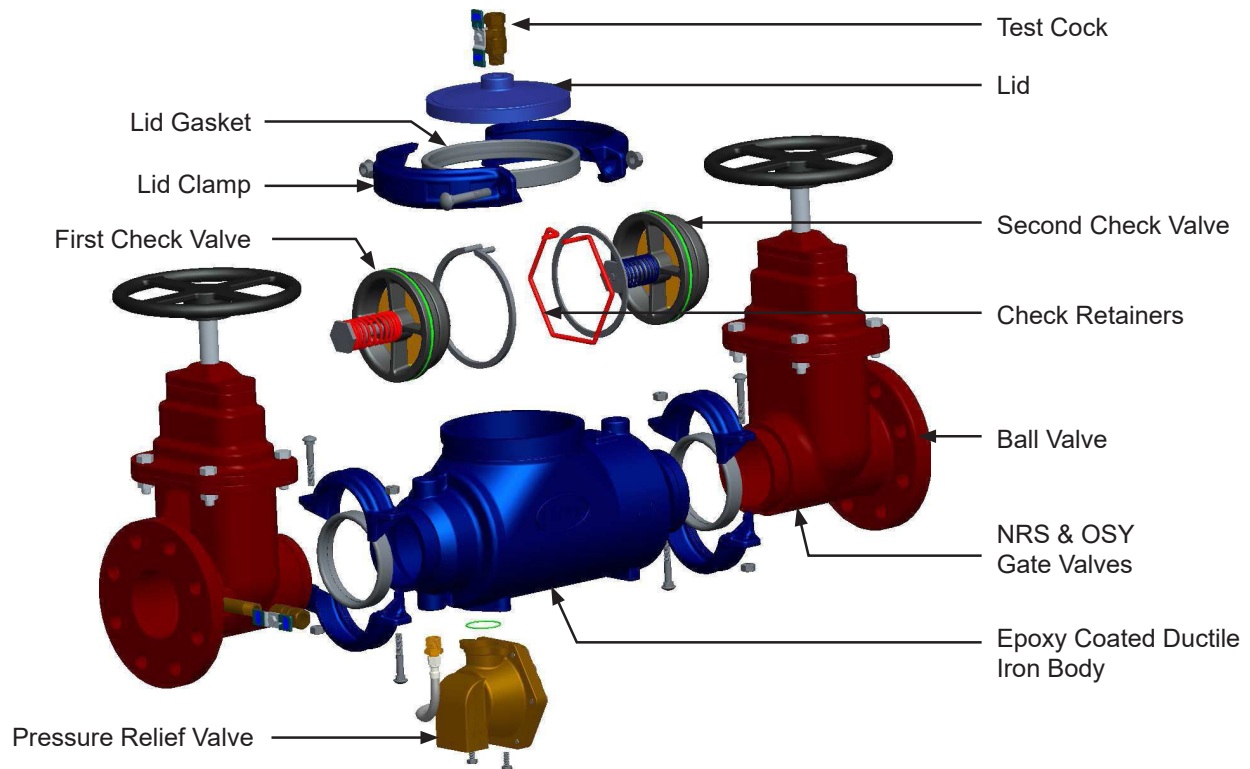
1. 1) Bleed all test cocks. First open test cock 4, make sure it is slightly open and water is flowing. Then open TC3, then TC2, then TC1 until they are completely bled. Close all TC's in the reverse order.
2. Attach test gauge high pressure hose (red hose) to test cock 2 (TC2).

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3. Attach test gauge low pressure hose (green hose) to test cock 3 (TC3). Attach a bypass hose to the low side bleed needle valve.
4. Open TC3 fully, then open the low side needle valve and let the water run out.
5. Open TC2 and pressurize the test kit.
6. Open the high side needle valve and bleed the high side hose.
7. Close SOV2.
8. Attach a bypass hose from the high side bleed needle valve to TC4. Open TC4.
9. Open the low side bleed needle valve. Allow the pressure to build beyond the recorded differential for CV1 and close the low side needle valve.
10. Open the high side bleed needle valve. If the pressure holds, CV2 is sealed properly.



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Design and dimensions are subject to modification. Prices do not include applicable taxes.

Visit www.beecobackflow.com for the most recent product information.

BEECO, Inc., 1321 West 119th Street, Chicago, Illinois 60643-5109, USA

All sales subject to BEECO's Terms and Warranties. Please refer to page no. 34.

Toll Free: 1-800-465-2736, Fax: 1-773-341-3049
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TERMS AND CONDITIONS

IO & M

WHOLESALE DISCOUNT: Contact BEECO® or your local representative for your applicable discount structure.

FREIGHT ALLOWANCE: Ex Works, BEECO®'s Chicago, Illinois Factory or Manufacturer Representative's warehouse with full motor freight allowed on shipments of \$3,500 Net or more, within the continental U.S.A. or Canada, except Alaska, Hawaii and Puerto Rico. BEECO® reserves the right to choose the carrier and route of shipment. Alaska: Ex Works, Seattle, WA. Hawaii: Freight allowed on shipments of \$3,500 or more only when shipped from West Coast, U.S. Puerto Rico: Ex Works, Miami, Florida. There is no allowance for United Parcel Service, Federal Express or Shipment by air service. Full motor freight is allowed on shipments of \$3,500 Net or more, within the continental U.S.A. and Canada for any combination of BEECO®, Counterline, No Hub Coupling, Trench Drain, Access Door and Trap Seal Primer products. Shipping dates are estimates and time of delivery is not the essence of the sale of the contract. Therefore, under no circumstances will BEECO® have any responsibility on account of any delays in manufacture, transportation, or otherwise. Additional freight services such as construction site delivery, lift gate delivery service, re-consigned freight or notification charges, are not included in full freight allowance terms, and will result in additional freight charges.

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NOTES

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MIFAB CATALOGS



MPB-2025-04-USA
SPECIFICATION DRAINAGE
PRODUCTS
(LIT-067)



CLPB-2025-04
LIGHT COMMERCIAL
PRODUCTS
(LIT-048)



AD-2026-USA
ACCESS DOORS
(LIT-043)



BEECO-2026
BACKFLOW PREVENTERS,
AND ACCESSORIES
(LIT-071)



NH-2026
NO HUB COUPLINGS
(LIT-044)



TDP-2026
POLYMER CONCRETE
TRENCH DRAINS
(LIT-076)



TD-2026
GRP AND STEEL
TRENCH DRAINS
(LIT-046)



TDS-2026
SHOWER DRAINS
(LIT-077)



TDSS-2026
STAINLESS STEEL
TRENCH DRAINS
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ROOFGUARD
ROOF DOMES
(LIT-058)



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